CLAIMS:

1. A polynucleotide that encodes a PHOR-1 polypeptide, wherein the polynucleotide is selected from the group consisting of:

(a) a polynucleotide having the sequence as shown in FIG. 1A-D (SEQ ID NO: 1), wherein T can also be U;

(b) a polynucleotide having the sequence as shown in FIG. 1A-D (SEQ ID NO: 1), from nucleotide residue number 133 through nucleotide residue number 1083, wherein T can also be U;

(c) a polynucleotide encoding a PHOR-1 polypeptide whose sequence is encoded by the cDNA contained in the plasmid designated p101P3A11 deposited with American Type Culture Collection as Accession No. PTA-312;

(d) a polynucleotide encoding a PHOR-1 protein having the amino acid sequence shown in FIG. 1A-D (SEQ ID NO: 2); and

(e) a polynucleotide that is fully complementary to a polynucleotide of any one of (a)-(d).

2. A polynucleotide that encodes a polypeptide that is at least 90% identical to the amino acid sequence shown in FIG. 1A-D (SEQ ID NO: 2) over its entire length.

3. A fragment of a polynucleotide of claim 1 comprising:

(a) a polynucleotide having the sequence as shown in FIG. 1A-D (SEQ ID NO: 1), from nucleotide residue number 388 through nucleotide residue number 1062, from nucleotide residue number 159 through nucleotide residue number 733, from nucleotide residue number 854 through nucleotide residue number 3136, or from nucleotide residue number 133 through nucleotide residue number 1083;

(b) a polynucleotide that is a fragment of the polynucleotide of (a) that is at least 20 nucleotide bases in length; or

(c) a polynucleotide that selectively hybridizes under stringent conditions to the polynucleotide of (a) or (b).

4. A polynucleotide that encodes a PHOR-1 polypeptide, wherein the polypeptide includes an amino acid sequence selected from the group consisting of NESS (SEQ ID NO: 10), NLTI (SEQ ID NO: 11), NSTT (SEQ ID NO: 12), RRDS (SEQ ID NO: 13), SKR, SLHE (SEQ ID NO: 14), SGID (SEQ ID NO: 15), SGME (SEQ ID NO: 16), GNESSA (SEQ ID NO: 17), GLEEAQ (SEQ ID NO: 18), GMESTV (SEQ ID NO: 19), GTCVSH (SEQ ID NO: 20), MVDPNGNESSATYF (SEQ ID NO: 8), VHRFSKRRDSPLP (SEQ ID NO: 9), residues 112-128 of SEQ ID NO: 2, residues 1-128 of SEQ ID NO: 2, residues 128-238 of SEQ ID NO: 2, residues 188-317 of SEQ ID NO: 2, residues 100-295 of SEQ ID NO: 2, residues 1-188 of SEQ ID NO: 2, residues 52-238 of SEQ ID NO: 2, residues 61-82 of SEQ ID NO: 2, residues 239-254 of SEQ ID NO: 2, and residues 86-310 of SEQ ID NO: 2.

5. A polynucleotide of claim 1 that is labeled with a detectable marker.

6. A recombinant expression vector that contains a polynucleotide of claim 1.

7. A host cell that contains an expression vector of claim 6.

8. A process for producing a PHOR-1 polypeptide comprising culturing a host cell of claim 7 under conditions sufficient for the production of the polypeptide.

9. The process of claim 8, further comprising recovering the PHOR-1 polypeptide so produced.

10. A PHOR-1 polypeptide produced by the process of claim 8.

11. A PHOR-1 polypeptide encoded by the polynucleotide of claim 1.

12. A polypeptide comprising at least 15 contiguous amino acids of the polypeptide of claim 11.

13. An antibody or fragment thereof that specifically binds to the PHOR-1 polypeptide of claim 11.

14. The antibody or fragment thereof of claim 13, which is monoclonal.

15. A recombinant protein comprising the antigen binding region of a monoclonal antibody of claim 14.

16. The antibody or fragment thereof of claim 13, which is labeled with a detectable marker.

17. The antibody or fragment thereof of claim 16, wherein the detectable marker is selected from the group consisting of a radioisotope, fluorescent compound, bioluminescent compound, chemiluminescent compound, metal chelator or enzyme.

18. The antibody fragment of claim 13, which is an Fab, F(ab')2, Fv or sFv fragment.

19. The antibody or fragment thereof of claim 13, which is a human antibody.

20. The antibody or fragment thereof of claim 13, which is conjugated to a toxin or a therapeutic agent.

21. The antibody of claim 13, which comprises murine antigen binding region residues and human antibody residues.

22. A transgenic animal producing a monoclonal antibody of claim 14.

23. A hybridoma producing a monoclonal antibody of claim 14.

24. A single chain monoclonal antibody that comprises the variable domains of the heavy and light chains of a monoclonal antibody of claim 14.

25. A vector comprising a polynucleotide encoding a single chain monoclonal antibody of claim 24.

26. An assay for detecting the presence of a PHOR-1 protein in a biological sample comprising contacting the sample with an antibody or fragment thereof or

recombinant protein of claim 16, and detecting the binding of PHOR-1 protein in the sample thereto.

27. An assay for detecting the presence of a PHOR-1 polynucleotide in a biological sample, comprising

(a) contacting the sample with a polynucleotide probe that specifically hybridizes to the polynucleotide of claim 1; and

(b) detecting the presence of a hybridization complex formed by the hybridization of the probe with PHOR-1 polynucleotide in the sample, wherein the presence of the hybridization complex indicates the presence of PHOR-1 polynucleotide within the sample.

28. An assay for detecting the presence of PHOR-1 mRNA in a biological sample comprising:

(a) producing cDNA from the sample by reverse transcription using at least one primer;

(b) amplifying the cDNA so produced using PHOR-1 polynucleotides as sense and antisense primers to amplify PHOR-1 cDNAs therein;

(c) detecting the presence of the amplified PHOR-1 cDNA,

wherein the PHOR-1 polynucleotides used as the sense and antisense probes are capable of amplifying the PHOR-1 cDNA contained within the plasmid p101P3A11 as deposited with American Type Culture Collection as Accession No. PTA-312.

29. A method of detecting the presence of a cancer expressing PHOR-1 protein that comprises determining the level of PHOR-1 protein expressed by cells in a test tissue sample from an individual and comparing the level so determined to the level of PHOR-1 expressed in a corresponding normal sample, the presence of elevated PHOR-1 protein in the test sample relative to the normal sample providing an indication of the presence of such cancer in the individual.

30. A method of monitoring PHOR-1 gene products comprising determining the status of PHOR-1 gene products expressed by cells in a test tissue sample from an individual and comparing the status so determined to the status of PHOR-1 gene products in a corresponding normal sample, the presence of aberrant PHOR-1 gene products in the test sample relative to the normal sample providing an indication of dysregulated cell growth within the individual.

31. A method of diagnosing the presence of cancer in an individual comprising:

(a) determining the level of PHOR-1 mRNA expressed in a test sample obtained from the individual; and

(b) comparing the level so determined to the level of PHOR-1 mRNA expressed in a comparable known normal tissue sample,

the presence of elevated PHOR-1 mRNA expression in the test sample relative to the normal tissue sample providing an indication of the presence of cancer.

32. A method of diagnosing the presence of cancer in an individual comprising:

(a) determining the level of PHOR-1 protein expressed in a test sample obtained from the individual; and

(b) comparing the level so determined to the level of PHOR-1 protein expressed in a comparable known normal tissue sample,

the presence of elevated PHOR-1 protein in the test sample relative to the normal tissue sample providing an indication of the presence of cancer.

33. The method of claim 31, wherein the cancer is prostate, kidney, uterine, cervical, stomach or rectal cancer, and the test and normal tissue samples are selected from the group consisting of prostate tissue, kidney tissue, uterine tissue, cervical specimen, stomach tissue, rectal tissue, bone tissue, lymphatic tissue, serum, blood or semen.

34. A pharmaceutical composition comprising a PHOR-1 polypeptide of claim of claim 11 or an immunogenic portion thereof, and a physiologically acceptable carrier.

35. A pharmaceutical composition comprising the vector of claim 25, and a physiologically acceptable carrier.

36. A pharmaceutical composition comprising an antisense polynucleotide complementary to or a ribozyme capable of cleaving a polynucleotide of claim 1, and a physiologically acceptable carrier.

37. A pharmaceutical composition comprising an antibody or fragment thereof of claim 13, and a physiologically acceptable carrier.

38. A method of treating a patient with a cancer that expresses PHOR-1 which comprises administering to said patient a vector according to claim 25, such that the vector delivers the single chain monoclonal antibody coding sequence to the cancer cells and the encoded single chain antibody is expressed intracellularly therein.

39. A method of treating a patient with a cancer that expresses PHOR-1 which comprises administering to said patient a composition of claim 37.

40. A vaccine composition for the treatment of a cancer expressing PHOR-1 comprising an immunogenic portion of a PHOR-1 protein and a physiologically acceptable carrier.

41. A method of inhibiting the development of a cancer expressing PHOR-1 in a patient, comprising administering to the patient an effective amount of the vaccine composition of claim 40.

42. A method of identifying a molecule that modulates a biological activity of PHOR-1 comprising:

(a) contacting a molecule with a cell that expresses PHOR-1;

(b) assaying a biological activity of PHOR-1 in the presence and absence of the molecule; and

(c) determining whether the biological activity of PHOR-1 is altered by the presence of the molecule, an alteration in the biological activity of PHOR-1 being indicative of a molecule that modulates a biological activity of PHOR-1.

43. The method of claim 42, wherein the biological activity of PHOR-1 comprises tyrosine phosphorylation, cytosolic cAMP accumulation, or stimulation of colony growth.